

**REMARKS**

In the non-final Office Action, the Examiner rejects claims 1-3, 8-11, 15-16, 20-21, 24, 26-27, 34 and 37-38 under 35 U.S.C. § 103(a) as being unpatentable over TWITCHELL (U.S. Publication No. 2005/0215280) in view of KRANTZ et al. (U.S. Publication No. 2006/0107081); rejects claims 4-6, 12-14, 22-23, 25 and 35 under 35 U.S.C. § 103(a) as being unpatentable over TWITCHELL in view of KRANTZ et al., and further in view of BALACHANDRAN et al. (U.S. Publication No. 2004/0230638); rejects claims 7, 28-29, and 36 under 35 U.S.C. § 103(a) as being unpatentable TWITCHELL in view of KRANTZ et al., and BALACHANDRAN et al., and further in view of BAHL et al. (U.S. Publication No. 2004/0218580); rejects claims 17-18 and 30-32 under 35 U.S.C. § 103(a) as being unpatentable TWITCHELL in view of GARCIA-LUNA-ACEVES et al. (U.S. Publication No. 2002/0067736); and rejects claims 19 and 33 under 35 U.S.C. § 103(a) as being unpatentable TWITCHELL in view of GARCIA-LUNA-ACEVES et al., and further in view of BALACHANDRAN et al.

Claims 1-38 are pending in the present application. Timely reconsideration and allowance of all claims in view of the following remarks are respectfully requested.

**Rejections Under 35 U.S.C. § 103(a)**

Claims 1-3, 8-11, 15, 16, 20, 21, 24, 26, 27, 34, 37, and 38 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over TWITCHELL in view of KRANTZ et al. Applicant respectfully traverses.

A proper rejection under 35 U.S.C. § 103 requires that three basic criteria be met. First, there must be some suggestion or motivation, either in the references themselves, or in the

knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest each and every claim limitation. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The combination of TWITCHELL and KRANTZ et al. fail to disclose or reasonably suggest the combination of features recited in Applicant's claims 1-3, 8-11, 15, 16, 20, 21, 24, 26, 27, 34, 37, and 38.

Independent claim 1 is directed toward a method for a given node to join an ad hoc network of a plurality of energy-conserving nodes, including transmitting a wake-up signal; receiving a message from one of the energy-conserving nodes in the network, the message including information sufficient for the given node to determine how to join the network; and joining the network using the information. The combination of TWITCHELL and KRANTZ et al. does not disclose or fairly suggest the combination of features recited in claim 1.

For example, neither TWITCHELL and KRANTZ et al. disclose or suggest receiving a message from one of the energy-conserving nodes in the network, the message including information sufficient for the given node to determine how to join the network; and joining the network using the information, as required by claim 1. In rejecting claim 1, the Examiner acknowledged that TWITCHELL fails to disclose the above-recited feature and relied on paragraph 0041 of KRANTZ et al. for allegedly disclosing this feature. (Office Action, pg. 3). Applicants respectfully disagree.

Paragraph 0041 of KRANTZ et al. discloses:

When in one of the power savings modes, the power management module 202 receives information from the modules 204-214 and uses that information to set the power level of the network interface module 201. The packet analyzer settings from packet analyzer 212 take precedence over the scanning settings from scanning engine 204 or application settings received from the API 206. The rationale is that the packet analyzer determines the appropriate power level for the supported data transmission rate and if the card requires less than full power to achieve the data transmission rate, then power should be conserved. The exception is if neither the scanning engine 204 nor the application request high power and one of them requests low power, in which case the network interface module 201 can remain in low power state as there is no client requirement for it to be in a high power state. If none of the components provide input to the power management module 202, then the power setting will remain in its existing state.

This section of KRANTZ et al. discloses that the power management module 202 of a device 100 may be operated in several different power savings modes based on information received from other modules in the device, such as scanning engine 204, packet analyzer 212, etc. This section of KRANTZ et al. does not disclose receiving a message from one of the energy-conserving nodes in the network, as required by claim 1. Rather, this section of KRANTZ et al. discloses that processing modules in a single network device 100 may work together to determine an appropriate power savings mode for the device. Of importance, it should be noted that the power savings mode of device 100 is NOT set based on information or messages received from access point 231 or wireless devices 221, 222, or 223. Rather, it is clear from the disclosure of KRANTZ et al. that the setting of device 100's power savings mode is based on device-specific configuration and application requirements sufficient to enable device 100 to join a network and perform functions required by its various components or modules (see, e.g., paragraphs 0039-0043 of KRANTZ et al.).

For at least these reasons, claim 1 is patentable over TWITCHELL and KRANTZ et al., whether taken alone or in any reasonable combination. Reconsideration and allowance of claim 1 are respectfully requested.

Claims 2, 3, 8-11, 15, and 16 depend from claim 1 and are therefore patentable over TWITCHELL and KRANTZ et al. for at least the reasons set forth above with respect to claim 1. Moreover, these claims are patentable for additional reasons of their own.

For example, neither TWITCHELL nor KRANTZ et al. disclose or suggest waiting to receive the message from the one of the energy-conserving nodes, and receiving the message from the one of the energy-conserving nodes, the message including information regarding a time when at least one node of the energy-conserving nodes is available to receive messages, as recited by claim 3. In rejecting claim 3, the Examiner indicated that paragraph 0033 of TWITCHELL allegedly discloses these features. (Office Action, pp. 3-4). Applicant respectfully disagrees.

As an initial matter, it would appear that the Examiner erroneously indicated that the reference cited as disclosing these features is the TWITCHELL reference rather than the KRANTZ et al. reference. In rejecting claim 1, the Examiner acknowledged that TWITCHELL does not disclose or suggest receiving a message from one of the energy-conserving nodes. Therefore, it is unclear how any portion of TWITCHELL may then be relied on for disclosing a further feature relating to receiving the message from the one of the energy-receiving nodes. As an additional indicator of this error, paragraph 0033 of TWITCHELL bears no relation to a transceiver for receiving messages, and in fact, recites a brief description of Fig. 22. For the purposes of completeness, the remainder of the discussion of claim 3 will relate to the disclosure of paragraph 0033 of KRANTZ et al. However, clarification of the ground of rejection is respectfully requested.

At paragraph 0033, KRANTZ et al. discloses:

The operating system of the device 100 or another module (not shown) determines if power is being supplied by the limited energy power source 120 or from an ac source. It uses power supply indicator 208 to communicate to the power management module 202 whether the

device 100 is being supplied power by an ac source or from the limited energy power source 120. The user may specify the power setting it wants through power setting 210. These power settings are high, medium, and low. The high power setting corresponds to a constant awake mode, the low power setting corresponds to a maximum power saving mode, and the medium power setting corresponds to a fast power saving mode and these power settings are described herein. Packet analyzer 212 determines when the network interface module 202 may be put in the doze state. The packet analyzer 212 observes packets sent through the network interface module 202 to determine when a client is not sending traffic. When sufficient time has passed between sending data, the packet analyzer 212 informs the power management module that it can set the network interface module 202 to a doze state. Statistics analyzer 214 only works for network drivers that support it. The packet analyzer 212 queries the statistics analyzer 214 to determine statistics for the connection to determine if the power level should be adjusted. The statistics include received signal strength, transmitted fragment count, failed count, retry count, multiple retry count, frame duplicate count, RTS success count, RTS failure count, ACK failure count, FCS error count, and transmitted frame count.

This section of KRANTZ et al. discloses that the operating system of device 100 may determine the manner in which power is supplied and may be set to power settings in response to this determination. Additionally, this section of KRANTZ et al. discloses that when device 100 has not sent packet data for a "sufficient time", then the device may enter a doze state. This section of KRANTZ et al. does not disclose waiting to receive the message from the one of the energy-conserving nodes, and receiving the message from the one of the energy-conserving nodes, the message including information regarding a time when at least one node of the energy-conserving nodes is available to receive messages, as recited by claim 3. Rather, as described above, all power settings in KRANTZ et al. are determined within the device itself. KRANTZ et al. does not disclose receiving a message from one of the energy-conserving nodes in the network, let alone the message including information regarding a time when at least one node of the energy-conserving nodes is available to receive messages, as recited by claim 3.

For at least these additional reasons, claim 3 is patentable over the combination of TWITCHELL and KRANTZ et al., whether alone or in any reasonable combination.

Reconsideration and allowance are respectfully requested.

Regarding claim 8, the combination of TWITCHELL and KRANTZ et al. do not disclose or suggest transmitting the message, by one of the energy-conserving nodes, responsive to receiving the wake-up signal. In rejecting claim 8, the Examiner relied on paragraph 0071 of TWITCHELL for allegedly disclosing the above-recited feature of claim 8. (Office Action, pg. 4). Applicant respectfully disagrees.

As an initial matter, it is unclear how TWITCHELL may be properly relied upon to reject this feature of claim 8. In rejecting claim 1, the Examiner acknowledged that TWITCHELL does not disclose or suggest receiving a message from one of the energy-conserving nodes, where the message includes information sufficient for the given node to determine how to join the network. Therefore, it is unclear how any portion of TWITCHELL may then be relied on for disclosing transmitting the message responsive to receiving the wake-up signal.

At paragraph 0071, TWITCHELL discloses:

In commercial practice, for example, the WT component could comprise a simple RFID tag modified to provide the wake up signal to the LPRF communications component. Such a wireless tag in standard operation "chirps" in response to receipt of incident RF energy, and the RFID tag would only need to be modified in order to channel the energy otherwise used for the "chirp" to the input of the LPRF communications component in order to wake it up. The present invention thus provides a method of using "wireless tag technology" (i.e., the receiver circuit of wireless tags) to wake the LPRF communications component when communication needs to commence.

This section of TWITCHELL discloses an RFID tag configured to wake up a LPRF communications component. This section of TWITCHELL does not disclose or even remotely

suggest transmitting the message (including information sufficient for a given node to determine how to join the network), by one of the energy-conserving nodes, responsive to receiving the wake-up signal. In fact, it is only the concept of waking up the LPRF component that is disclosed in TWITCHELL.

For at least this additional reason, claim 8 is patentable over the combination of TWITCHELL and KRANTZ et al., whether alone or in any reasonable combination. Reconsideration and allowance are respectfully requested.

Independent claims 20, 26, 34, and 37 recites features similar to, but possibly different in scope than, claim 1. Accordingly, claims 20, 26, 34, and 37 are patentable over TWITCHELL and KRANTZ et al. for at least reasons similar to those set forth above, with respect to claim 1. Reconsideration and the timely allowance of claims 20, 26, 34, and 37 are respectfully requested.

Claims 21 and 24 depend from claim 20 and are therefore patentable over TWITCHELL and KRANTZ et al. for at least the reasons set forth above with respect to claim 20. Reconsideration and allowance of claims 21 and 24 are respectfully requested.

Claim 27 depends from claim 26 and is therefore patentable over TWITCHELL and KRANTZ et al. for at least the reasons set forth above with respect to claim 26. Reconsideration and allowance of claim 27 are respectfully requested.

Claim 38 depends from claim 37 and is therefore patentable over TWITCHELL and KRANTZ et al. for at least the reasons set forth above with respect to claim 37. Reconsideration and allowance of claim 38 are respectfully requested.

Claims 4-6, 12-14, 22, 23, 25 and 35 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over TWITCHELL in view of KRANTZ et al., and further in view of BALACHANDRAN et al. Applicant respectfully traverses.

Claims 4-6 and 12-14 depend from claim 1. The disclosure of BALACHANDRAN et al. does not remedy the deficiencies of TWITCHELL and KRANTZ et al. noted above with respect to claim 1. Accordingly, claims 4-6 and 12-14 are patentable over the combination of TWITCHELL, KRANTZ et al., and BALACHANDRAN et al. for at least the reasons set forth above with respect to claim 1.

Claims 22, 23 and 25 depend from claim 20. The disclosure of BALACHANDRAN et al. does not remedy the deficiencies of TWITCHELL and KRANTZ et al. noted above with respect to claim 20. Accordingly, claims 22, 23, and 25 are patentable over the combination of TWITCHELL, KRANTZ et al., and BALACHANDRAN et al. for at least the reasons set forth above with respect to claim 20.

Claim 35 depends from claim 34. The disclosure of BALACHANDRAN et al. does not remedy the deficiencies of TWITCHELL and KRANTZ et al. noted above with respect to claim 34. Accordingly, claim 35 is patentable over the combination of TWITCHELL, KRANTZ et al., and BALACHANDRAN et al. for at least the reasons set forth above with respect to claim 34.

Claims 7, 28-29, and 36 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over TWITCHELL in view of KRANTZ et al., and BALACHANDRAN et al., and further in view of BAHL et al. Applicant respectfully traverses.

Claim 7 depends from claim 1. The disclosure of BAHL et al. does not remedy the deficiencies of TWITCHELL, KRANTZ et al., and BALACHANDRAN et al. noted above with



respect to claim 1. Accordingly, claim 7 is patentable over the combination of TWITCHELL, KRANTZ et al., BALACHANDRAN et al., and BAHL et al. for at least the reasons set forth above with respect to claim 1.

Claims 28 and 29 depend from claim 26. The disclosure of BAHL et al. does not remedy the deficiencies of TWITCHELL, KRANTZ et al., and BALACHANDRAN et al. noted above with respect to claim 26. Accordingly, claims 28 and 29 are patentable over the combination of TWITCHELL, KRANTZ et al., BALACHANDRAN et al., and BAHL et al. for at least the reasons set forth above with respect to claim 26.

Claim 36 depends from claim 34. The disclosure of BAHL et al. does not remedy the deficiencies of TWITCHELL, KRANTZ et al., and BALACHANDRAN et al. noted above with respect to claim 34. Accordingly, claim 36 is patentable over the combination of TWITCHELL, KRANTZ et al., BALACHANDRAN et al., and BAHL et al. for at least the reasons set forth above with respect to claim 34.

Claims 17, 18, and 30-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable TWITCHELL in view of GARCIA-LUNA-ACEVES et al. Applicant respectfully traverses.

Independent claim 17 recites an energy-conserving ad hoc network including a plurality of nodes, each of the nodes including a transceiver configured to receive and transmit data messages; processing logic; a memory configured to store a schedule of reception times; a bellringer transmitter; and a bellringer receiver. When the node is an existing node in the network, the processing logic is configured to receive a wake-up signal via the bellringer receiver, and responsive to the receiving of the wake-up signal, transmit, via the transceiver, a message including the schedule of reception times. When the node is a node joining the

network, the processing logic is configured to transmit the wake-up signal, receive the message from an existing one of the nodes in the network, and join the network based on the message. The cited combination of TWITCHELL and GARCIA-LUNA-ACEVES et al. does not disclose or suggest every feature of claim 17.

For example, neither TWITCHELL nor GARCIA-LUNA-ACEVES et al. discloses or suggests a memory configured to store a schedule of reception times, and a processor configured to transmit, via the transceiver, a message including the schedule of reception times, responsive to the receiving of the wake-up signal, as required by claim 17. In rejecting claim 17, the Examiner relied on paragraphs 0079 and 0114 for allegedly disclosing a memory configured to store a schedule of reception times and transmitting a message including the schedule of reception times. (Office Action – pp. 13-14). Applicant respectfully disagrees.

At paragraph 0079, TWITCHELL discloses:

Application Server communicates with nodes of ad hoc network through the external network and the Gateway to obtain and compile information regarding tagged assets. In this respect, it now will be appreciated by those having ordinary skill in the art that the nodes of these Class Based Networks comprise a distributed database of information pertaining to the tagged assets. As set forth above, a Wireless Reader Tag or a Wireless Tag stores in memory not only a WRT ID or WT ID, respectively, but also may store additional information such as, for example: class designation; sensor derived information; a priority designation to provide improved response to selected broadcasts; a privilege level; time-sensitive information; a characteristic of the particular tagged asset; and/or a behavior of the tagged asset. This stored information becomes accessible by the asset-tracking application server through the Class Based Networks. The asset-tracking application server also can obtain the WRT ID associated with each WT ID for intelligence gathering purposes.

This section of TWITCHELL discloses that wireless tags or nodes form a distributed database of information relating to the assets that are tagged. Tagged asset or tag-specific information

may be stored in each tag and may be read by a wireless reader tag. This section of TWITCHELL clearly does not disclose or even remotely suggest storing a schedule of reception times, as required by claim 17.

At paragraph 114, TWITCHELL discloses:

Wireless Reader Tags are preferably synchronized to allow scheduled communication to a particular WRT Class at regular intervals. When a Wireless Reader Tag communicates to a target WRT Class, the Wireless Reader Tag transmits a data packet at a time precisely synchronized with the targeted WRT Class. To conserve battery power, the receiving members of the WRT Class only power up to listen at each such interval and only for very small periods of time (e.g., a few milliseconds) when data packet for such WRT Class would normally be transmitted. The intervals at which a Wireless Reader Tag listens for communications directed to its WRT Class is called the duty cycle, which can be dynamically adjusted to respond to network communication demands while minimizing battery consumption. Depending upon the time sensitive nature of the assets being tracked and their priority, a period of inactivity may prompt a Wireless Reader Tag to limit its duty cycle to intervals of minutes or hours. After a prolonged period of inactivity, a Wireless Reader Tag may ping (transmit) to determine whether other Wireless Reader Tags are still alive and available for communication. Assuming that no network changes have occurred, the Wireless Reader Tag goes back to sleep until the next duty cycle. Network changes may cause all or a part of a Class Based Network to reconfigure.

This section of TWITCHELL discloses that a wireless reader tag may communicate with other members of a wireless reader tag class at periodic intervals. Members of this class may be powered up during these synchronized intervals to listen for such communications. This section of TWITCHELL does not disclose a processor configured to transmit, via the transceiver, a message including a schedule of reception times (stored in memory), responsive to the receiving of the wake-up signal, as required by claim 17. Rather, TWITCHELL is silent with respect to the manner in which the synchronization of members of a wireless reader tag class is performed.

For at least these reasons, claim 17 is patentable over the combination of TWITCHELL and GARCIA-LUNA-ACEVES et al. Reconsideration and allowance of claim 17 are therefore respectfully requested.

Claim 18 depends from claim 17 and is therefore allowable over the combination of TWITCHELL and GARCIA-LUNA-ACEVES et al. for at least the reason set forth above with respect to claim 17. Reconsideration and allowance of claim 18 are therefore respectfully requested.

Independent claim 30 recites features similar to, but possibly different in scope than, claim 17. Accordingly, claim 30 is patentable over TWITCHELL and GARCIA-LUNA-ACEVES et al. for at least reasons similar to those set forth above, with respect to claim 17. Reconsideration and timely allowance of claim 30 are respectfully requested.

Claims 31 and 32 depend from claim 30 and are therefore allowable over the combination of TWITCHELL and GARCIA-LUNA-ACEVES et al. for at least the reason set forth above with respect to claim 30. Reconsideration and allowance of claims 31 and 32 are respectfully requested.

Claims 19 and 33 have been rejected under 35 U.S.C. § 103(a) as being unpatentable TWITCHELL in view of GARCIA-LUNA-ACEVES et al., and further in view of BALACHANDRAN et al. Applicant respectfully traverses.

Claim 19 depends from claim 17. The disclosure of BALACHANDRAN et al. does not remedy the deficiencies of TWITCHELL and GARCIA-LUNA-ACEVES et al. noted above with respect to claim 17. Accordingly, claim 19 is patentable over the combination of TWITCHELL,

GARCIA-LUNA-ACEVES et al., and BALACHANDRAN et al. for at least the reasons set forth above with respect to claim 17.

Claim 33 depends from claim 30. The disclosure of BALACHANDRAN et al. does not remedy the deficiencies of TWITCHELL and GARCIA-LUNA-ACEVES et al. noted above with respect to claim 30. Accordingly, claim 33 is patentable over the combination of TWITCHELL, GARCIA-LUNA-ACEVES et al., and BALACHANDRAN et al. for at least the reasons set forth above with respect to claim 30.

**Conclusion**

In view of the above amendment, Applicant respectfully requests the Examiner's reconsideration of the rejection of claims 1-38.

Applicant believes no fee is due with this request other than as reflected on the enclosed Fee Transmittal. However, if a fee is due, please charge our Deposit Account No. 18-1945, under Order No. BBNT-P01-266 from which the undersigned is authorized to draw.

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Respectfully submitted,

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